#### **Bit: (Binary Digit):**

The smallest unit of memory. Can take on one of two values (0 or 1). (All data in a computer is represented as a pattern of bits.)

#### Byte:

A group of 8 bits. (Memory is measured by the number of bytes it contains.)

#### ASCII Code (Unicode):

A standardized scheme for representing characters in patterns of 7 bits. (There are  $2^7 = 128$  ascii patterns.)

ASCII Character Codes					
code	char	code	char	code	char
00100000	space	01000000	Q	01100000	,
00100001	1	01000001	Α	01100001	a
00100010	н	01000010	В	01100010	b
00100011	#	01000011	С	01100011	с
00100100	\$	01000100	D	01100100	d
00100101	%	01000101	E	01100101	е
00100110	&	01000110	F	01100110	f
00100111	•	01000111	G	01100111	g
00101000	(	03.001000	Н	01101000	h
00101001	)	01001001	I	01101001	i
00101010	*	01001010	J	01101010	j
00101011	+	01001011	К	01101011	k
00101100	,	01001100	L	01101100	1
00101101	-	01001101	М	01101101	m
00101110		01001110	Ν	01101110	n
00101111	/	01001111	0	01101111	о
00110000	0	01010000	Р	01110000	р
00110001	1	01010001	Q	01110001	q
00110010	2	01010010	R	01110010	r
00110011	3	01010011	S	01110011	S
00110100	4	01010100	Т	01110100	t
00110101	5	01010101	U	01110101	u
00110110	6	01010110	V	01110110	v
00110111	7	01010111	W	01110111	W
00111000	8	01011000	Х	01111000	x
00111001	9	01011001	Y	01111001	У
00111010	:	01011010	Z	01111010	z
00111011	;	01011011	[	01111011	{
00111100	<	01011100	\	01111100	1
00111101	=	01011101	]	01111101	}
00111110	>	01011110	٨	01111110	~
00111111	?	01011111		01111111	delete

The ASCII character set.

Representing a string as a sequence of ASCII codes.

### **ASCII File (or text file):**

A document that contains plain text only (e.g., a Notepad file). Each character of text is stored as a single byte using the ASCII code.

### **Binary File:**

Files that contain data that is not plain text (e.g., word processing files, executable files, graphics files).

### File Size:

Numbers of bytes in the file.

1KB (kilobyte) =	$2^{10}$ bytes = 1024 bytes
1MB (megabyte) =	$2^{20}$ bytes = 1024KB
1GB (gigabyte) =	$2^{30}$ bytes = 1024MB
1TB (terabyte) =	$2^{40}$ bytes = 1024GB

### File Compression:

Used to reduce the storage requirements for large files (e.g., graphics, music, and video files). Sample techniques: jpeg, mp3, mpeg, LZW, MH, ...

## **Speed of Data Transmission:**

Data are transmitted at speeds measured in **bps** (bits per second).

# **Typical Speeds:**

Modem - 33.6Kbps, 56Kbps ISDN - 64Kbps, 2 x 64 Kbps DSL -Cable Modem -